

ABSTRACT

A method and apparatus using deep pleated filters to provide efficient and safe electrically enhanced filtering (EEF), with ultra low pressure drop, higher efficiency of particulate removal and higher dirt holding capacity over the life of the filter. An EEF may be constructed with a housing, with or without an internal air moving device such as a fan, a deeply pleated filter, preferably a V-pack filter with sets of downstream ground electrodes and charge transfer electrodes borne by the exterior surface of the filter packs that form the filtering element. An ionizer assembly that ionizes the gas and charges particles entering the deeply pleated filter and also transfers a charge to the charge transfer electrodes on the filter pack. A plate seals the gasket on the filtering element against the ionizing assembly. A high electrical potential is applied to charging elements in the ionizer and, in some embodiments, a fan or motor assembly. The charge transfer electrodes enable the device to function with a high particle collection field between the charge transfer electrodes and the downstream grounded electrodes to safely and efficiently attain higher entrapment of the particles on the filter medium.